

SPECIFICATION

To All Whom It May Concern:

Be it known that I, James Thiel, a citizen of the United States, residing in
5 the City of Benton, County of Franklin, and State of Illinois, and having a
residential address at 13740 Cyril James Road, Benton, Illinois, 62812 have
invented new and useful improvements in a:

10 MULTI-LIFT FOR LIFTING AND STORING MOTORCYCLES AND OTHER VEHICLES

CROSS REFERENCE TO RELATED APPLICATION

This non-provisional patent application claims priority to the provisional application for patent having Ser. No. 60/471,441, which was filed on May 19, 2003.

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BACKGROUND OF THE INVENTION

This invention relates to generally to a lift mechanism, the principal of which can be used for lifting various types of vehicles, such as motorcycles, bicycles, and other vehicles, to elevate them, and provide additional storage
10 room for such vehicles particularly during their period of non usage.

Various types of vehicle storage means have been provided in the art. As for example, the patent to Villars, Pat. No. 2,843,222, shows a lifting device. In this particular instance, the device appears to be used at a service station, for use for lifting an appliance, such as a motor car, or touring car, so that it can be
15 serviced.

The patent to Rosen, No. 5,145,304, shows a height adjustable vehicle parking apparatus. This is a device that is used for storing and parking vehicles which includes a height adjustable means for supporting a vehicle boom, at various heights, to provide intermediate and upstanding stances that permit
20 shifting of the vehicle once parked. It appears this device utilizes various types of hydraulic cylinders, and piston means, to elevate various vehicles.

The patent to Lin, No. 5,330,310, shows a double deck parking device. This device also can be used for providing multiple level parking for automobiles. It also appears to utilize various types of levers, with hydraulic cylinders, for lifting
25 of the shown vehicle.

Another patent to Rosen, No. 5,702,222, shows an electrically driven car lift apparatus for home use. This device is also designed to provide for multi level parking, in the home and utilizes a chain drive, to elevate any vehicle.

Foreign patents mostly Japanese Publications describe other lifts. For example, Japanese patent No. 129,129 shows the use of a screw drive for elevating the vehicle and its platform. Japanese patent No. 173,481 shows another type of lifting device, which includes a pair of columns to raise a vehicle.

- 5 Japanese patent No. 173,482 shows what appears to be a hydraulic type of lifting device for raising of its shown platform. The Japanese patent No. 193,296, describes another type of lift, which apparently operates upon a chain type drive. Japanese patent No. 144,368, shows some type of a multiple storage means for motorcycles, or the like. Finally, the Japanese patent No. 287,923 shows a type
10 of lifting mechanism for elevating vehicles. This appears to operate off of a lever mechanism system for elevating its upper rack.

These are examples of prior art known to the applicant.

SUMMARY OF THE INVENTION

- 15 This invention contemplates the formation of stable supported column that it has a motor driven screw contained centrally therein. Within the central cavity of the column, a lift mechanism, this incorporates a threaded nut that rides up and down upon the screw, provides for the lift feature of this particular device. Externally of the lift mechanism there is a shaft upon a carriage to which the
20 boom pivotally mounts. The boom has enough width to accommodate a motorcycle, or two, thereon, or perhaps other forms of bicycles, or cycles. When its motor is actuated, it allows for its screw to turn, elevating its threaded sleeve or nut, to raise the stored item thereon, such as a motorcycle, to an elevated position for storage.

In addition, the boom used for holding the motorcycles has sufficient width and stability to connect with the threaded nut, or sleeve that provided for its lift, upon turning of the screw. The boom telescopically mounts in its integral construction and also extends, so that perhaps more than one motorcycle may
5 be mounted upon the boom, as it is elevated upwardly into storage. The boom, as it connects with its threaded sleeve, is pivotal, and can pivot approximately 60° to 90° with respect to its supporting column, so as to dispose the motorcycle laden boom generally angularly to the side, as it is elevated, to provide for overhead storage.

10 The device then provides a lifting and an aerial storage of motorcycles, especially. This device may also store and life ATV's, lawn mowers, and other equipment. It is, therefore, the principal object of this invention to provide a pivoting boom upon which various types of vehicles and equipment may be temporarily mounted, such as a motorcycle, bicycle, or lawn mower, to provide
15 for its elevating and storage.

Another object of this invention is to provide a boom or support assembly for a lift carriage which can slide outwardly, so as to provide adequate length for holding the entire motorcycle lengthwise, or perhaps more of the same, for overhead storage.

20 Another object of this invention is to provide a lift mechanism which can dispose its lifting boom directly on the floor, so that the motorcycle can be driven directly onto the carriage, and to make sure that the cycle is properly positioned, for elevation, as the lift mechanism is energized.

Still another object of this invention is to provide for a unique overhead
25 storage system wherein the motorcycles, or other vehicles, can be adequately strapped into a stationary position, in preparation for their overhead storage.

These and other objects may become more apparent to those skilled in the art upon reviewing the summary of the invention as provided therein, and upon undertaking a study of the description of its preferred embodiment, in view of the drawings.

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BRIEF DESCRIPTION OF THE DRAWINGS

In referring to the drawings, Fig. 1 is an isometric view of the preferred embodiment of the multi-lift device of the present invention;

Fig. 2 is a front view of the lower section of the multi-lift device;

10 Fig. 3 is a side view of the upper section and motor of the multi-lift device;

Fig. 4 is a front view of the shaft and the upper load bearing for the multi-lift device;

Fig. 5 is an isometric view of the carriage of this invention;

Fig. 6 is a view of the boom extended for holding one or more vehicles;

15 and,

Fig. 7 is a schematic of the wiring diagram for controlling the electrical operations of this multi-lift device.

The same reference numerals refer to the same parts throughout the various figures.

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DESCRIPTION OF THE PREFERRED EMBODIMENT

In referring to the drawings, and in particular FIG. 1, the multi-lift for lifting and storing motorcycles and other vehicles is disclosed at 1. This device, as shown, includes a column, which has located therein a threaded shaft or screw 2, supported therein by means of a lower bearing 3 (see FIG. 2) and an upper bearing 4 (see FIG. 4). The threaded shaft 2 is provided for pivoting or rotating within the column by means of a motor 5, which is generally connected, for turning the upper end of the threaded shaft 2 during operations of this device 1.

The motor 5 is a reversible motor, which can be run in one direction for raising the carriage 6 and the boom 9, while it can be turned in an opposite direction for lowering of the carriage 6 and the boom 9. Fig. 3 also discloses the control box containing the electrical means for furnishing and controlling power to the motor

5 5. The control box being shown at 13.

As shown in FIG. 5, the lift mechanism includes a carriage 6, which connects onto the threaded shaft 2 by means of an upper flange 7 and a lower flange 8 that ride upon the threads of the shaft 2 to provide for elevating or lowering of the entire carriage during its manipulation and operation. The upper
10 flange 7 has a complete round hole to fit around the carriage while the lower flange 8 has a semicircular hole to merely ride upon the carriage 6. The semicircular hole allows for rapid installation and removal of the boom 9 from the carriage 6. As can further be seen, the carriage 6 includes a series of lateral handles, as at 12, in order to aid in the manipulation of the carriage 6, as pivoted,
15 from one side to the other, as for use for storing motorcycles thereon.

The boom 9 as can also be seen in Fig. 6 extends forwardly of the lift, and has a telescoping section 10, that telescopes and locates within the front part of the boom 9, as at 11. Thus, the boom 9 can be contracted by sliding the frontal part 10 into the main boom 9 at 11, or the boom 9 can be extended, as shown in
20 Fig. 6, to hold one or perhaps two motorcycles thereon, during their support for storage. And while one or more motorcycles or other wheeled vehicles, can be located upon the carriage 6, and elevated to its fullest height, and then pivoted to one side, it is likely that an additional carriage 6 may be loaded onto the threaded shaft 2, so as to store multiple vehicles, thereon, during usage of this storage
25 device 1.

In use, for example, one or more motorcycles could be located upon the carriage 6 and boom 9, as shown in Fig. 1, elevated, and then pivoted to the side, in the manner as shown in Fig. 1. Additional carriages 6 and booms 9 may

be provided thereunder for simultaneous elevating by turning of the threaded shaft 2, after motorcycles have been applied thereto, to allow for their elevating, and pivoted to an opposite side or forwardly to furnish storage of a number of such vehicles. In addition, while the multi-lift of this invention is shown with indoor
5 floor mounting, the present inventions can actually be located within a truck, on a truck bed, upon a trailer, and anywhere where storage is needed for a wheeled or other vehicle through the use of a multi-lift in a manner as shown and described herein.

Fig. 7 discloses the wiring diagram for this particular invention and for
10 furnishing the electrical charge necessary for it to function. For example, an incoming electrical line as at 14, delivers 110 volts AC to the system. Various limit switches are electrically connected, as can be seen at 15 and 16, as to furnish an upper limit to the extent upwardly that the carriage can be elevated while storing a vehicle, and to provide a lower limit to which the carriage may be
15 lowered when receiving a vehicle. A motor 17 schematically shown in Fig. 7 is a reversible motor that can provide for turning the threaded shaft in one direction or the other, depending on whether the carriage is to be elevated, or lowered. Electrical lines, as can be noted at 18, provide for electrical connection between the motor 17, and the doubled throw double pull switch 19, which energizes the
20 motor 5 in either forward or reverse turning. Thus, by manipulating the switch 19, the motor 5 can be energized by the incoming charge passing along electrical line 14, to either raise or lower the carriage 6.

Variation or modifications to the subject matter of this invention may occur to those skilled in the art upon review of the invention as disclosed herein, such
25 variations, if within the spirit of this development, are intended to be encompassed within the scope of the invention as shown and described. The description of the preferred invention and the depiction of the invention are for illustrative purposes only.